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DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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August 2, 1991

Mr. Wendell Owen
Co-Op Mining Company
P.O. Box 1245
Huntington, Utah 84528

Dear Mr. Owen:

Re: Approval of Water Quality Matrix Amendment, Co-Op Mining Company, Bear Canyon Mine, ACT/015/025-91B, Folder #3, Emery County, Utah

The above-noted amendment is hereby approved conditioned upon the attached draft pages are finalized and resubmitted by August 15, 1991.

Sincerely,

Pamela Grubaugh-Littig
Permit Supervisor

jbe
AT015025.14
Attachments

Table 7.1-8 Water Monitoring Matrix 1990 thru 1991

1990

DRAFT

Location	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Upper Bear Creek BC-1		opper.			opper.	field	field	opper.	field	base.		
Lower Bear Creek BC-2		opper.			opper.	field	field	opper.	field	base.		
Rt Fork Bear Cr. BC-3		opper.			opper.	field	field	opper.	field	base.		
Portal Well SBC-2		opper.			opper.			opper.		opper.		
Creek Well SBC-3		opper.			opper.			opper.		opper.		
Huntington Spr. SBC-4		opper.			opper.			opper.		base.		
Birch Spring SBC-5		opper.			opper.			opper.		base.		
Co-Op Dev Spring SBC-6		opper.			opper.			opper.		base.		
E Bleeder #33 W. (3) SBC-7		flow			flow			flow		flow		
E Bleeder #30 E. (3) SBC-8		flow			flow			flow		flow		
1st N Bleeder #42 SBC-9		base.			base.			base.		base.		

Notes:
1. See Tables 7.1-7 and 7.2-5 for listing of water quality monitoring parameters.
2. opper. = operational
   base. = baseline
3. SBC-7 and SBC-8 dried up and discontinued.

Table 7.1-8 Water Monitoring Matrix 1990 thru 1991 (cont)

DRAFT

1991

Location	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Upper Bear Creek BC-1		opper.			opper.	field	field	opper.	field	opper.		
Lower Bear Creek BC-2		opper.			opper.	field	field	opper.	field	opper.		
Rt Fork Bear Cr. BC-3		opper.			opper.	field	field	opper.	field	opper.		
Portal Well SBC-2		(3)										
Creek Well SBC-3		opper.			opper.			opper.		opper.		
Huntington Spr. (4) SBC-4		base.				base.	base.	base.	base.	base.	base.	base.
Birch Spring (4) SBC-5		base.				base.	base.	base.	base.	base.	base.	base.
Co-Op Dev Spring SBC-6		opper.			opper.			opper.		opper.		
1st N. Bleeder #42 SBC-9		base.			base.			base.		base.		

Notes:
1. See Tables 7.1-7 and 7.2-5 for listing of water quality monitoring parameters.
2. opper. = operational
   base. = baseline
3. SBC-2 caved in, lost, and discontinued in 1991.
4. SBC-4 and SBC-5 shall also be tested for oil and grease.

Table 7.1-9 Water Monitoring Matrix 1992 thru 1995

DRAFT

1992

Location	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Upper Bear Creek BC-1		opper.			opper.	field	field	opper.	field	opper.		
Lower Bear Creek BC-2		opper.			opper.	field	field	opper.	field	opper.		
Rt Fork Bear Cr. BC-3		opper.			opper.	field	field	opper.	field	opper.		
Creek Well SBC-3		opper.			opper.			opper.		opper.		
Huntington Spr. (3,4) SBC-4	base.	base.	base.	base.	base.			base.		base.		
Birch Spring (3,4) SBC-5	base.	base.	base.	base.	base.			base.		base.		
Co-Op Dev Spring SBC-6		opper.			opper.			opper.		opper.		
1st N. Bleeder #42 SBC-9		opper.			opper.			opper.		opper.		

Notes:
1. See Tables 7.1-7 and 7.2-5 for listing of water quality monitoring parameters.
2. opper. = operational
   base. = baseline
3. Monitoring parameters to be assessed in 1992.
4. SBC-4 and SBC-5 shall also be tested for oil and grease.

Table 7.1-9 Water Monitoring Matrix 1992 thru 1995(cont)

1993 thru 1995

Location	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
Upper Bear Creek BC-1		opper.			opper.	field	field	opper.	field	opper. (3)		
Lower Bear Creek BC-2		opper.			opper.	field	field	opper.	field	opper. (3)		
Rt Fork Bear Cr. BC-3		opper.			opper.	field	field	opper.	field	opper. (3)		
Portal Well SBC-2		opper.			opper.			opper.		opper.		
Creek Well SBC-3		opper.			opper.			opper.		opper.		
Huntington Spr. (4) SBC-4		opper.			opper.			opper.		opper. (3)		
Birch Spring (4) SBC-5		opper.			opper.			opper.		opper. (3)		
Co-Op Dev Spring SBC-6		opper.			opper.			opper.		opper. (3)		
1st N. Bleeder #42 SBC-9		opper.			opper.			opper.		opper.		

Notes:
1. See Tables 7.1-7 and 7.2-5 for listing of water quality monitoring parameters.
2. opper. = operational
   base. = baseline
3. Baseline parameters taken in 1995.
4. SBC-4 and SBC-5 shall also be tested for oil and grease.

Culvert Outlet C-1U 1991

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In order to reduce erosion occurring at the outlet of culvert C-1U, a flexible culvert will be added to the end of the in-place culvert. The extension will extend to a point where the discharge is onto the rock cliff. The only runoff that crosses the slope below the Upper Storage Pad will then be the direct impact precipitation. The flexible culvert will be attached to the slope using the method identified in Figure 7.2.12. Vegetation will be evaluated, stabilized, and supplemented as required.

A splash basin and drainage channel will be established at the immediate impact area in the downcast material at the base of the cliff, to direct drainage to the original drainage path. Due to the inaccessible nature of the location all work will be performed by hand. This limits the size of rip-rap that can be placed so the construction will be reviewed by qualified personnel along with the division. See Figure 7.2-7 for a profile of the cliff and downfall area. The remaining downcast material in the pile at the base of the cliff will be stabilized with erosion control matting and using interim reclamation procedures defined in Appendix 3-G.

A small sediment basin will be constructed and maintained at the inlet of culvert C-8U, and cleaned as needed to reduce potential impacts of suspended solids to surface waters. The inlet sediment basin is shown on Plate 7-1C.